

What is claimed is:

1. A composite member comprising different members of a ceramic base and a metallic member which are bonded to each other, wherein an active metal foil is disposed on the surface of the ceramic base and a solder material comprising Au is disposed on the active metal foil, the active metal foil and the solder material are heated to form a bonding layer, the metallic member is disposed on the surface of the bonding layer, and these are pressed and heated to bond the bonding layer and the metallic member through solid phase bonding.

2. A composite member comprising different members of a ceramic base and a metallic member which are bonded to each other, wherein an active metal foil is disposed on the surface of the ceramic base and a solder material comprising an Au-Ag alloy is disposed on the active metal foil, the active metal foil and the solder material are heated to form a bonding layer, the metallic member is disposed on the surface of the bonding layer, and these are pressed and heated to bond the bonding layer and the metallic member through solid phase bonding.

3. A composite member according to claim 2, wherein the content of Ag in the Au-Ag alloy is 0.5-80 wt%.

4. A composite member according to claim 1, wherein an electrical conductor comprising Mo, W or an alloy of Mo and W is embedded in the ceramic base so that a part of the surface of the electrical conductor is exposed to the exterior of the ceramic base.

5. A composite member according to claim 1, wherein the material of the ceramic base is at least one material selected

from the group consisting of aluminum nitride, silicon nitride, alumina, zirconia, magnesia, spinel and silicon carbide.

6. A composite member according to claim 1, wherein the material of the metallic member is at least one material  
5 selected from the group consisting of Ni, Co, Fe and Cr.

7. A composite member according to claim 1, wherein the material of the metallic member is an alloy comprising as a main constituting element at least one material selected from the group consisting of Ni, Co, Fe and Cr.

10 8. A composite member according to claim 1, wherein the material of the active metal foil is at least one material selected from the group consisting of Ti, Nb, Hf and Zr.

9. A composite member according to claim 1, which is used as a susceptor for disposing a semiconductor wafer.

15 10. A method for making a composite member comprising different members of a ceramic base and a metallic member bonded to each other which comprises a first step of disposing an active metal foil on the ceramic base and a solder material comprising Au on the active metal foil, followed by heating them to form  
20 a bonding layer comprising the solder material on the surface of the ceramic base and a second step of disposing the metallic member on the surface of the bonding layer, followed by pressing and heating them to bond the bonding layer and the metallic member through solid phase bonding.

25 11. A method for making a composite member according to claim 10 which uses the ceramic member in which an electrical conductor comprising Mo, W or an alloy of Mo and W is embedded so that a part of the surface of the electrical conductor is

exposed to the exterior of the ceramic base.

12. A method for making a composite member according to claim 10 which uses the ceramic base comprising at least one material selected from the group consisting of aluminum nitride, silicon nitride, alumina, zirconia, magnesia, spinel and silicon carbide.

13. A method for making a composite member according to claim 10 which uses the metallic member comprising at least one material selected from the group consisting of Ni, Co, Fe and Cr.

14. A method for making a composite member according to claim 10 which uses the metallic member comprising an alloy having as a main constituting element at least one material selected from the group consisting of Ni, Co, Fe and Cr.

15. A method for making a composite member according to claim 10 which uses the active metal foil comprising at least one material selected from the group consisting of Ti, Nb, Hf and Zr.

16. A method for making a composite member comprising different members of a ceramic base and a metallic member bonded to each other which comprises a first step of disposing an active metal foil on the ceramic base and a solder material comprising an Au-Ag alloy on the active metal foil, followed by heating them to form a bonding layer comprising the solder material on the surface of the ceramic base and a second step of disposing the metallic member on the surface of the bonding layer, followed by pressing and heating them to bond the bonding layer and the metallic member through solid phase bonding.

17. A method for making a composite member according to claim 16 which uses the ceramic member in which an electrical conductor comprising Mo, W or an alloy of Mo and W is embedded so that a part of the surface of the electrical conductor is exposed to the exterior of the ceramic base.

18. A method for making a composite member according to claim 16 which uses the ceramic base comprising at least one material selected from the group consisting of aluminum nitride, silicon nitride, alumina, zirconia, magnesia, spinel and silicon carbide.

19. A method for making a composite member according to claim 16 which uses the metallic member comprising at least one material selected from the group consisting of Ni, Co, Fe and Cr.

20. A method for making a composite member according to claim 16 which uses the metallic member comprising an alloy having as a main constituting element at least one material selected from the group consisting of Ni, Co, Fe and Cr.

21. A method for making a composite member according to claim 16 which uses the active metal foil comprising at least one material selected from the group consisting of Ti, Nb, Hf and Zr.

22. A method for making a composite member according to claim 11, wherein the content of Ag in the Au-Ag alloy is 0.5-80 wt%.

23. A method for making a composite member according to claim 22 which uses the ceramic member in which an electrical conductor comprising Mo, W or an alloy of Mo and W is embedded

so that a part of the surface of the electrical conductor is exposed to the exterior of the ceramic base.

24. A method for making a composite member according to claim 22 which uses the ceramic base comprising at least one material selected from the group consisting of aluminum nitride, silicon nitride, alumina, zirconia, magnesia, spinel and silicon carbide.

25. A method for making a composite member according to claim 22 which uses the metallic member comprising at least one material selected from the group consisting of Ni, Co, Fe and Cr.

26. A method for making a composite member according to claim 22 which uses the metallic member comprising an alloy having as a main constituting element at least one material selected from the group consisting of Ni, Co, Fe and Cr.

27. A method for making a composite member according to claim 22 which uses the active metal foil comprising at least one material selected from the group consisting of Ti, Nb, Hf and Zr.